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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,560

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Junichi Kinoshita

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EXAMINER

CONNELLY CUSHWA, MICHELLE R

ART UNIT

PAPER NUMBER

2874

MAIL DATE

DELIVERY MODE

10/04/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/567,560

Applicant(s)

KINOSHITA ET AL.

Examiner

Michelle R. Connelly-Cushwa

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13 and 22 is/are rejected.
- 7) ☒ Claim(s) 12 and 14-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/8/06 and 9/12/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The prior art documents submitted by applicant in the Information Disclosure Statements filed on February 8, 2006 and September 12, 2006 have all been considered and made of record (note the attached copies of form PTO-1449).

### ***Drawings***

Nine (9) sheets of formal drawings were filed on February 8, 2006 and have been accepted by the Examiner.

### ***Specification***

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

Claims 1-22 are objected to because of the following informalities:

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga (US 6,593,598 B2).**

Regarding claims 1 and 22; Ishinaga discloses a package and a manufacturing method for a light emitting element (see Figures 1-3), the package comprising:

- a package main body (20) having a bottom face on which a light emitting element (LED, 12) is arranged and a concave portion (24a) formed in an inverted truncated cone shape on an inner wall face intersecting with the bottom face by a predetermined angle ( $\theta$ ); and
- a translucent member (24) filled in the concave portion of the package main body;
- the angle between the inner wall face comprising the concave portion and the bottom face being selected so that light radiated from the light emitting element undergoes total reflection at the interface between the translucent member and air (column 3, lines 43-47).

Ishinaga does not explicitly state that the angle is within + or – 15 degrees of the incident critical angle in which a direct light radiated from the light emitting element undergoes total reflection, however, Ishinaga does disclose that the angle is selected to make an entire reflection of the light outputted from the LED chip (see column 3, lines

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43-47). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the angle is within + or – 15 degrees of the incident critical angle to ensure the total reflection described by Ishinaga, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 233) and it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 214 (CCPA 1980)).

Regarding claims 2 and 7; the package main body is comprises of a resin or ceramic (see column 2, line 67, through column 3, line 1.

Regarding claims 3, 4, 8 and 9; Ishinaga discloses all of the limitations of claim 3 as applied above, except for the resin being a white polyphthalamide or silicone resin. One of ordinary skill in the art would have found it obvious to incorporate any well known opaque resin, including a white polyphthalamide or silicone resin, in the invention of Ishinaga to form the package main body in order to make the body with readily available and well known materials, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice (*In re Leshin*, 125 USPQ 416).

Regarding claims 5 and 10; the reflectivity of the inner wall face of the concave portion is 60% or higher (column 3, lines 43-47).

Regarding claim 6; the light emitting element further comprises on the bottom portion of the concave portion of the package main body a lead frame (16a, 16b)

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mounting the light emitting element (12) thereon, a part of the lead frame exposed by a recess portion formed on the bottom face of the concave portion and on the inner wall face.

**Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga (US 6,593,598 B2) in view of Shimizu et al. (US 7,045,828 B2).**

Regarding claim 11; Ishinaga discloses a LED package meeting all of the limitations of claim 11 as applied above, except for a package main body where a plurality of peripheral concave portions are formed around a central concave portion in which light emitting element is arranged on the bottom portion.

Schimizu et al. teaches that a card-type illumination LED device that may replace conventional light source may be formed by providing a package main body with a plurality of peripheral concave portions formed around a central concave portion in which the light emitting element is arranged on the bottom portion (See column 1, lines 13-36 and Figures 4(a), 4(b), 5(a) and 5(b) ). One of ordinary skill in the art would have found it obvious to use the LED devices disclosed by Ishinaga to form a card-type illumination LED device as suggested by Shimizu et al. by providing a package main body where a plurality of peripheral concave portions are formed around a central concave portion in which a light emitting element is arranged on the bottom portion to provide a device that could replace conventional light sources, as discussed by Shimizu et al.

Regarding claim 13; the plurality of concave portions are arranged to form a plurality of concentric circles around the central concave portion (see Figures 4(a) and 4(b) of Schimizu et al.

***Allowable Subject Matter***

**Claims 12-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

**Claims 18-21 are objected to for the reasons set forth above, but would be allowable if rewritten to include all of the present limitations and to overcome the objections.**

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose or reasonably suggest:

- a package, as defined in claim 12, wherein peripheral concave portions located at a far position from the central concave portion are built to make the position of the bottom portion higher compared with the peripheral concave portions located at a near position in combination with the limitations of the base claim; or
- a package, as defined in claim 18, wherein the package main body on which a plurality of concentric circular reflecting grooves are formed around a central concave portion having a light emitting element arranged on the bottom portion thereof and a translucent member filled in the central concave portion and a plurality of reflection grooves.

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Claims 14-17 depend from claim 12; and claims 19-21 depend from claim 18.

**Conclusion**

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (571) 272-2345. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general or clerical nature should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562.



Michelle R. Connelly-Cushwa  
Patent Examiner  
September 27, 2007